iPECS

iPECS-LIK

RSGM Installer Guide

Please read this manual carefully before operating System. Retain it for future reference

iPECS is an Ericcson-LG Brand

ERICSSON LG

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1. INTRODUCTION

1.1 Purpose

This guide provides the information necessary to install, operate, and maintain the iPECS RSGM (Remote Services Gateway Module).

1.2 Regulatory Information

1.2.1 Telephone Company Notification

Before connecting the RSGM to the telephone network, you may be required to notify your local serving telephone company of your intention to use "customer provided equipment". You may further be required to provide any or all of the following information:

- PSTN line Telephone numbers to be connected to the system
- Model name .....LiK RSGM
- Local regulatory agency registration number .....locally provided
- Ringer equivalence 0.7B
- Registered jack.....RJ-11

The necessary information is available from your local representative of Ericsson-LG.

1.2.2 Regulatory Compliance

This equipment complies with the following standards,
FCC Part 15 & 68, IC (Industry Canada) CS03,
TBR21, TBR03, TBR04
National standards country by country.

Also, this equipment complies with the safety requirements of the following standards,
UL60950, CSA60950,
EN60950, EN55022, EN55024
National standards country by country.

For the local regulatory agency registration numbers, contact your local Ericsson-LG distributor.

1.2.3 Incidence of Harm

If the telephone company determines that customer provided equipment is faulty and may possibly cause harm or interruption in service to the telephone network, it should be disconnected until repair can be affected. If this is not done, the telephone company may temporarily disconnect service.

1.2.4 Changes in Service

The local telephone company may make changes in its communications facilities or procedures. If these changes could reasonably be expected to affect the use of the RSGM or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

1.2.5 Maintenance

Maintenance of the RSGM must be performed only by an authorized agent of Ericsson-LG. The user may not make any changes and/or repairs except as specifically noted in this manual. Unauthorized alternations or repairs may affect the regulatory status of the system and will void any remaining warranty.

1.2.6 Notice of Radiated Emission

The RSGM complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

WARNING:

"This equipment generates and uses R.F. energy, and if not installed and used in accordance with the Instruction Manual, it may cause interference to radio communications. It has been tested and found to comply with the appropriate limits for a telecommunication device. The limits are designed to provide reasonable protection against such interference, when operated in a commercial environment.

Operation of this equipment in a residential area could cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference."

1.2.7 Notice of Replacement of Lithium Battery

CAUTION

- If the battery is incorrectly replaced, the system will not function properly.
- Replace only with the same or equivalent type as recommended by the manufacturer.
- Dispose of used batteries accordance with the manufacturer's instructions.

1.2.8 Telephone line cord only in USA and Canada

CAUTION

- To reduce the risk of fire, use only No. 26 AWG or larger (e.g., 24 AWG) UL Listed or CSA Certified Telecommunication Line Cord.

2. GENERAL

The RSGM (Remote Service Gateway Module) is a remote gateway that provides a fully transparent connection to the iPECS host system over a broadband xDSL or Cable modem. The remote services are implemented in the iPECS Remote Services Application Server, which is an integral part of the iPECS software. The broadband connection employs the system's VoIP channels to communicate with the RSGM. The RSGM transparently extends the iPECS system services and resources to the user's iPECS Phone and/or Single Line Telephone interfaces over the broadband IP network.

Figure 2-1 shows an example of the RSGM connection.

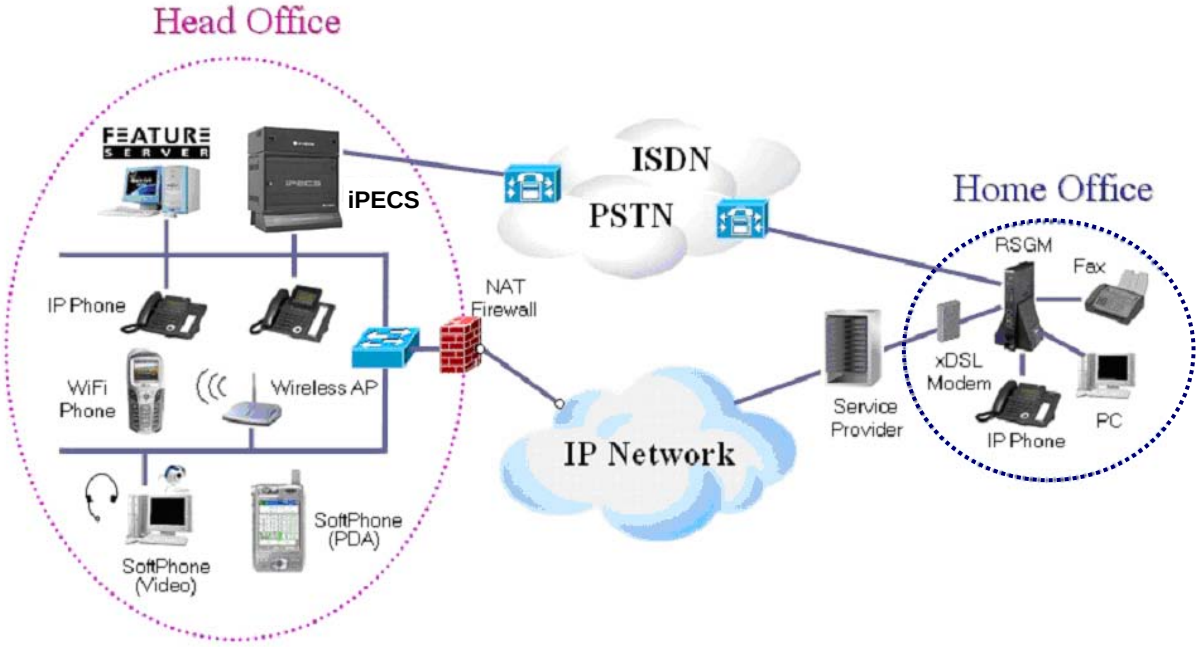
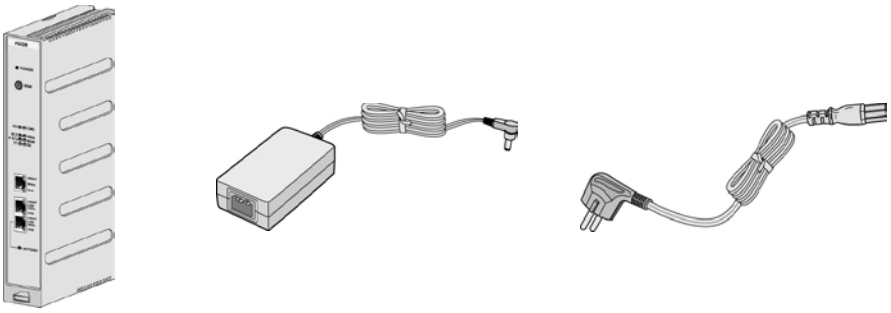


Figure 2-1 RSGM Structure

2.1 RSGM Package Contents

The RSGM is shipped with the iPECS RSGM module, a power adaptor and a power cord as shown in Figure 2.1-1.

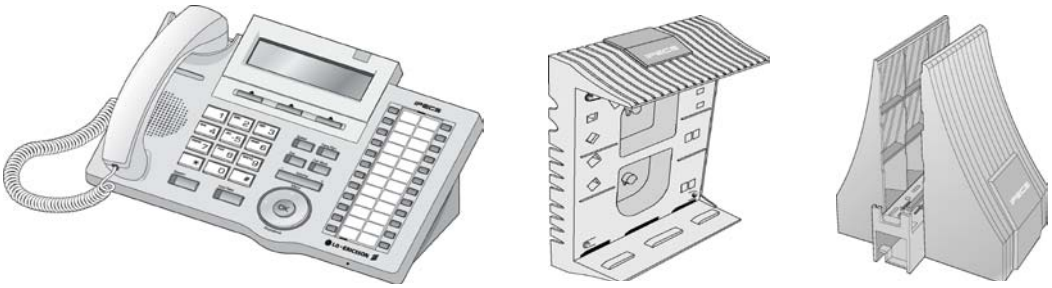
∗. Additionally, a ferrite core is included for EMI (Electromagnetic Interference).



RSGM Power Adapter Power Cord

Figure 2.1-1 RSGM package

Figure 2.1-2 shows the optional components that can be used with the RSGM. These Ericsson-LG proprietary equipments include the iPECS Phone, the Appliance Desk/Wall mount holders and CMU (Call Metering Unit). The iPECS Phone (LIP-24D series, LIP-7000 series) can be connected to IP KTU port of RSGM and used as local IP phone. The DHLD (Desk Mount Holder) and the WHLD (Wall Mount Holder) are used for mounting the RSGM. See the following Figure 2.1-2 and Table 2.1-1.



iPECS Phone WHLD DHLD

Figure 2.1-2 Optional RSGM Components

The optional RSGM CMU will provide CO Line usage statistics based on Call Metering signals from the PSTN. To obtain the RSGM with this option, contact an authorized agent of Ericsson-LG.

Table 2.1-1 RSGM & Options

No.	Product	Description	Remark
1	iPECS RSGM	Remote Service Gateway Module	Basic
2	AC/DC Adaptor –G-	AC/DC Adaptor for module, (48VDC, 0.8A)	Basic
3	AC Power Cord	AC power cord for an Adaptor	Basic
4	DHLD	Desk mount Holder for module	Option
5	WHLD	Wall mount Holder for module	Option
6	CMU	Call Metering Unit	Option
7	IPECS Phone	LIP-24D series, LIP-7000 series	Option

2.2 Hardware Description

The RSGM can be mounted on any flat surface with the DHLD or mounted to the wall with the WHLD. The external AC/DC adaptor feeds power to the RSGM. The connectors and indicators on the front and rear panel are shown in Figure 2.2-1.

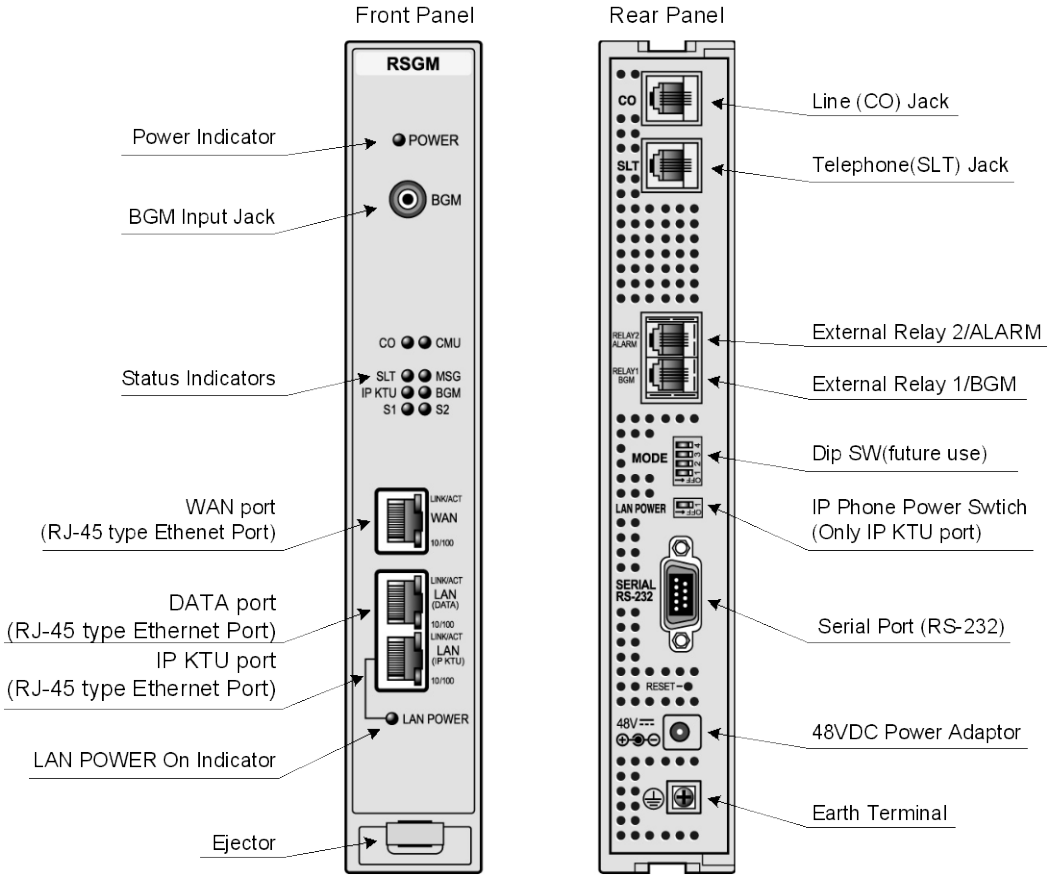


Figure 2.2-1 RSGM Front and Rear Panels

Connection ports

- One WAN connection port (RJ-45: 10/100 Base T Ethernet port)
- One PC connection port (RJ-45: 10/100 Base T Ethernet port)
- One iPECS Phone connection port (RJ-45: 10/100 Base T Ethernet port, supply power to iPECS Phone)
- One Analog “CO” port (RJ-11, Loop Start)
- One Analog ”SLT” port (RJ-11)
- One “BGM” port (RCA Jack, RJ-11)
- One Alarm/Doorbell Contact Input
- Two Dry Relay Contacts
- One RS-232 Serial Port
- 48VDC Power Input Jack

Indicators

The following Table 2.2-1 describes the various LEDs which provide visual representation of the RSGM activity and status.

Table 2.2-2 RSGM Activity & Status LEDs

Name	LED Color	Status	Description
POWER	RED	ON	Power On
		OFF	No Power
LINK/ACT	GREEN	ON	Valid LAN Link
		OFF	Link Fail
		FLASH	TX/RX Activity
10/100	YELLOW	ON	100 MBPS
		OFF	10 MBPS
LAN POWER	RED	ON	Supplying power to LIP phone
		OFF	Not supplying power to LIP phone
CO	RED	ON	CO Line in Use
		OFF	CO Line Idle
		FLASH	CO Line Ringing
CMU	RED	ON	CMU Installed
		OFF	CMU Not Installed
SLT	RED	ON	SLT in Use
		OFF	SLT Idle
		FLASH	SLT Ringing
MSG	RED	ON	SLT Message Waiting Message
		OFF	Message Idle
IP KTU	RED	ON	IP Phone in Use
		OFF	IP Phone Idle
		FLASH	IP Phone Ringing
BGM	RED	ON	BGM Activity
		OFF	BGM Idle
S1	RED	Future Use	S1
S2	RED	ON	WAN DISCONNECTED Mode
		FLASH	RSGM WAN connected

DIP Switches

The RSGM has two (2) switches on the rear panel. One is the "**MODE**" switch, which has four (4) contact positions, and the other is the "**LAN POWER**" switch, which has a single contact position. The "**MODE**" switch is used to control several options of the RSGM only when it is under WAN DISCONNECTED mode. The function of each switch and contact position is given in Table , below.

Table Table -Table Switch functions

Name	SWITCH	FUNCTION	ON	OFF
MODE	1	CO Dialing Type	Pulse	DTMF
	2	Alarm Set	Set	Not Set
	3	Relay 1 Set	Set	Not Set
	4	Relay 2 Set	Set	Not Set
LAN POWER	1	Supplying power to a LIP	Supplying power	Not supplying

CAUTION

Before switching "LAN POWER" 'ON', keep in mind that the type of terminal connected to the port "IP KTU". This port is intended for an iPECS Phone. If a data terminal other than the iPECS Phone is connected, activating the "LAN POWER" switch will cause damage to the terminal.

2.3 Specifications

Environmental Specification		
	Degrees (℃)	Degrees (°F)
Operation Temperature	0 ~ 40	32 ~ 104
Optimum Operation Temperature	20 ~ 26	68 ~ 78
Storage Temperature	0 ~ 70	32 ~ 158
Relative Humidity	0~80% RH non-condensing	

Power Adaptor Specification		
AC Input	AC100-240V, 50/60Hz, 1A max.	
DC Output	DC48V, 0.8A max	

* Use only the Power adaptor is supplied with the iPECS RSGM.

Line (CO) Interface Specification		
Ring Equivalence Number(REN)	0.7B	
DTMF Dialing	Min. 70ms,/ Min. 70 ms	Burst time / Inter-digit time
Pulse Dialing	10 pps, 60:40% or 67:33%	Rate, Ratio

Telephony (SLT) Interface Specification		
Connector	RJ-11	
Loop Distance	1Km	AWG #24 (0.5mm)
Ring Capacity	2 US REN	
Ring Frequency	25Hz	

LAN Interface Specification		
Connector	3 x RJ-45 shielded	
Ethernet	10/100 BASE T	
Maximum Wiring Distance	100m / 0.328Kft	

Miscellaneous interface Specification		
BGM	RCA jack or RJ-11	0 dBm @ 600 ohm
Dry Relay Contact	RJ-11	2A @ 30VDC
Alarm	RJ-11	

TIA/EIA-232 (RS-232) Interface Specification		
Connector	DB-9	
Configuration/Port Settings	38400 BPS, 8 Data Bits, No parity, 1	

Physical Specification		
W x D x H	38.3 x 181 x 230 mm	1.5 x 7.125 x 9.05 in
Weight	0.7 Kg	1.54 lbs
W x D x H with DHLD	149 x 128 x 260 mm	5.87 x 5.04 x 10.24 in
Weight with DHLD	1.1 Kg	2.42 lbs
W x D x H with WHLD	60 x 188.3 x 280 mm	2.36 x 7.41 x 11.02 in
Weight with WHLD	1.0 Kg	2.20 lbs

3. INSTALLATION

3.1 Installation Procedure

The installation and configuration of the RSGM should be conducted only by an authorized agent of Ericsson-LG. An example of the basic installation is shown in Figure 3.1-1 below.

Figure 3.1-1 RSGM Installation example

The basic procedure for installation is as follows.

1) Program the host iPECS, refer to the “iPECS Administration and Programming Manual” and section 5.
2) Assemble the WHLD or DHLD, refer to Figure 3.2-1 WHLD/DHLD Installation, and mount the RSGM in the holder mounting kit.
3) Connect the protective earth (⏚) terminal on the rear of the RSGM to a known earth ground.
4) Connect the “WAN” port (RJ-45) on the front panel of the RSGM to the LAN port (RJ-45) of the xDSL/Cable modem.
5) Connect the “DATA” port (RJ-45) on the front panel of the RSGM to the PC.
6) If used, connect the “IP KTU” port (RJ-45) on the front panel to the iPECS Phone. Then, using the “LAN POWER” switch on the RSGM rear panel, activate power feed to the iPECS Phone.
7) If used, connect the SLT port (RJ-11) on the rear panel of the RSGM to a Single Line Telephone
8) Connect the “CO” port (RJ-11) on the rear panel of the RSGM to the CO (Central Office) line.
9) Complete the Miscellaneous connections as required.
10) Plug the AC/DC adaptor into an AC outlet and to the DC input on the front panel of the RSGM.
11) Configure network parameters of the RSGM through the Web administration or the RS-232 Port. Refer to section 6. Network Configuration.

3.2 WHLD/DHLD Assembly & RSGM Mounting

As depicted in Figure 3.2-1, assemble the WHLD/DHLD and mount the RSGM in the WHLD or DHLD.

(a) RSGM installation on the WHLD (b) RSGM installation on the DHLD

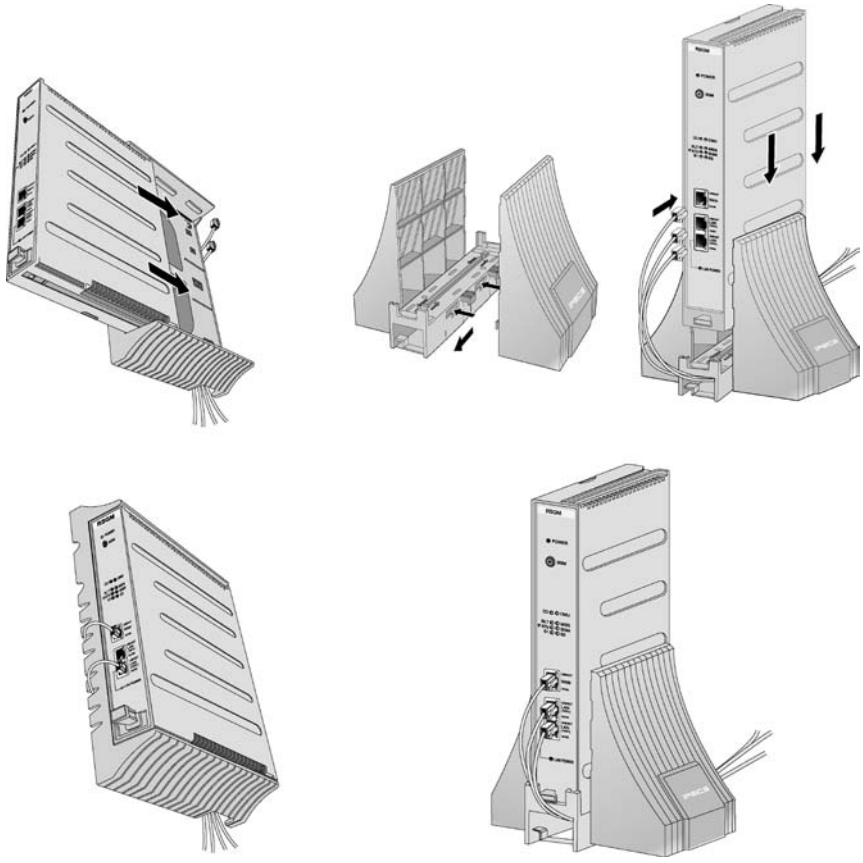


Figure 3.2-1 WHLD/DHLD Installation

To mount the RSGM on the WHLD, push the RSGM in the direction of the arrow as shown in Figure 3.2-1(a). To remove the RSGM from the WHLD, pull the Ejector on the bottom of the front panel.

When using of the DHLD, combine the pieces of the DHLD as shown Figure 3.2-1(b), and then insert the RSGM from top position.

3.3 WAN, DATA & IPKTU LAN Port Connections

The WAN, DATA and IPKTU LAN ports on the front panel require Category 5 UTP cables terminated with RJ-45, 10/100 Base T Ethernet connections. A category 5 UTP, straight cable is required. The three LAN ports of RSGM are wired as shown Figure 3.3-1.

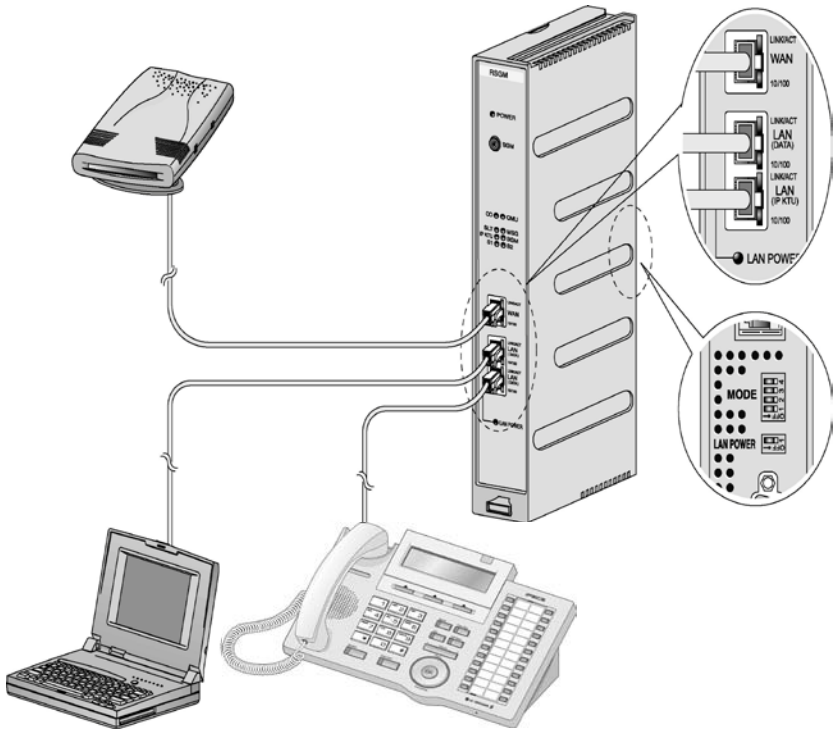


Figure 3.3-1 WAN/LAN connection

The pin-out of three Ethernet jacks is as shown in Figure 3.3-2 below.

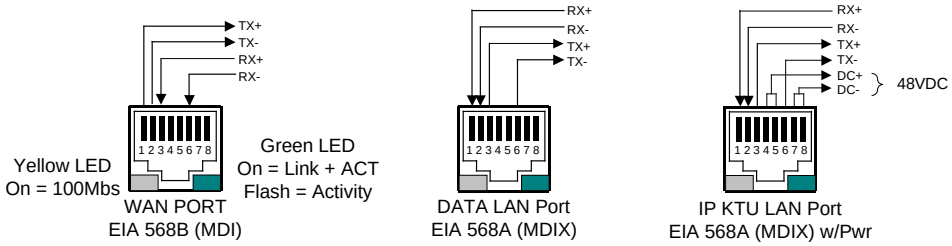


Figure 3.3-2 Pin Assignment of Ethernet ports

The "WAN" connector is connected to an xDSL/Cable Modem.

The "DATA LAN" port can be connected to a PC or a notebook.

The "IP KTU" port is intended for connection to an iPECS Phone. When the rear panel "LAN POWER" switch is 'ON', the RSGM delivers 48Vdc power to the phone through unused pairs (pin 4-5 and 7-8). If a PC or other data device is connected to this port, be sure LAN POWER switch is in the 'OFF' position. See Figure 3.3-1 above. In order to reduce EMI, the LAN cable connected

to “IP KTU” port is required to be turned by the ferrite core packaged in a box.

CAUTION

- *The “IP KTU” port of the RSGM does not support the IEEE 802.3af Standard.*
- *If you do not use an iPECS Phone, the “IP KTU” port can be used for other LAN equipment. In this case, be sure that “LAN POWER” switch is in the ‘OFF’ position; otherwise, the LAN equipment connected to “IP KTU” port will be damaged.*

3.4 “CO” and “SLT” Port Connections

The “CO” port on the rear panel is connected to the CO Line from the Public Exchange. The “SLT” port allows a telephone or FAX machine to be connected. The subscriber loop lengths of the “SLT” port can be extended up to 1 Km.

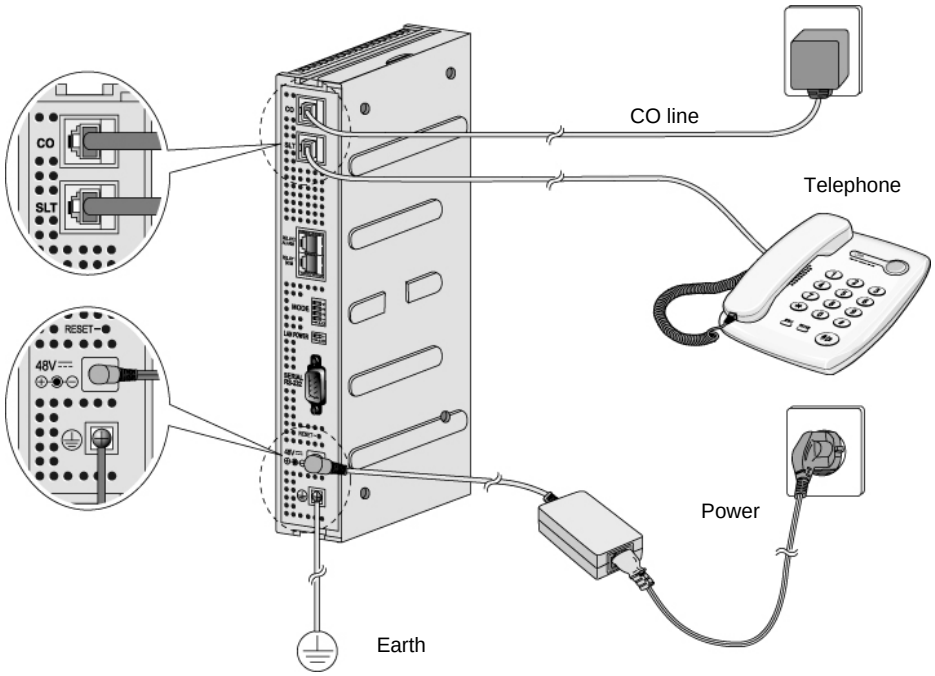


Figure 3.4-1 CO and SLT connection

As shown in Figure 3.4-2, the RJ-11 jack of the “CO” and “SLT” ports connects Tip and Ring for the telephony interface.

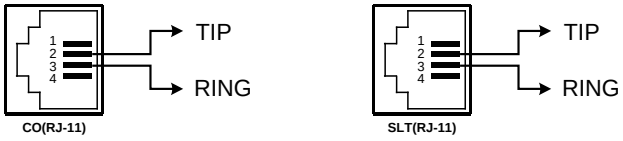


Figure 3.4-2 Pin Assignment of CO and SLT ports

3.5 Miscellaneous Connections

3.5.1 TIA/EIA-323 (RS-232) Connection

The DB-9 connector located on the front panel of the RSGM is used for TIA/EIA-323(RS-232) connection. This connector is employed to provide terminal access to the network configuration or system diagnostics of the RSGM. The serial configuration of the RSGM is 38400bps, 8 bits, no parity, and one stop bit.

This TIA/EIA-323 (RS-232) does not support hardware flow control signals. Only three wires are needed (TD, RD, and SG). See Figure 3.5-1.

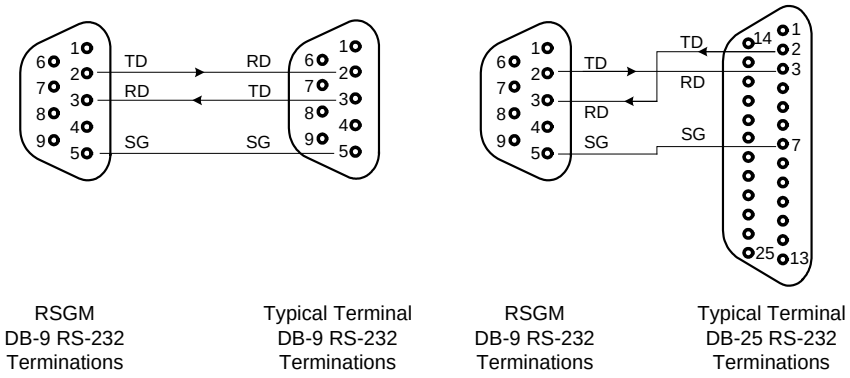


Figure 3.5-1 Pin Assignments of TIA/EIA-323

Table 3.5-1 Pin Description of TIA/EIA-323

Designation	Function
TD	Transmitted Data
RD	Received Data
SG	Signal Ground

3.5.2 External BGM

The BGM jack is used to connect to an external music source. To use the external music, connect a music source to the BGM RCA jack on the front panel using an audio cable or with an RJ-11 plug on the rear panel BGM RJ-11 jack. See Figure 2.2-1 and Figure 3.5-2.

📖 *The "BGM" connection on the rear panel is common with BGM RCA jack of the front panel.*

3.5.3 Alarm Port

The RSGM has an alarm port. The Alarm port is used for sensing the status of the external switch, e.g. alarm or door bell. See Figure 3.5-2.

3.5.4 External Relay1, 2

The RSGM has two dry relay contacts with 2A @30VDC. See Figure 3.5-2. These contacts are used to control an external device such as a door-lock release mechanism.

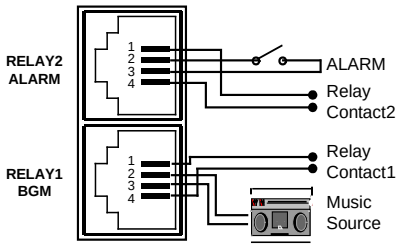


Figure 3.5-2 Pin Assignments of BGM/ALARM/Relay Contacts

3.5.5 AC/DC Power Adaptor Connection

An AC/DC adaptor is packaged with the RSGM. The adaptor is supplied with a two (2) meter (six (6) foot) AC cord terminated with the nationally relevant AC blade type. The adaptor supports AC input power systems with rated voltage range of 100-240 VAC @ 50/60 Hz. The adaptor provides 48 VDC, 0.8 amps. The DC output connector is cabled to the adaptor with a two (2) meter (six (6) foot) cable. Figure 3.5-3 shows the AC/DC Adaptor for the RSGM.

📖 *Assure the AC Power connection is within the rated voltage, frequency and current ratings of the AC/DC adaptor.*

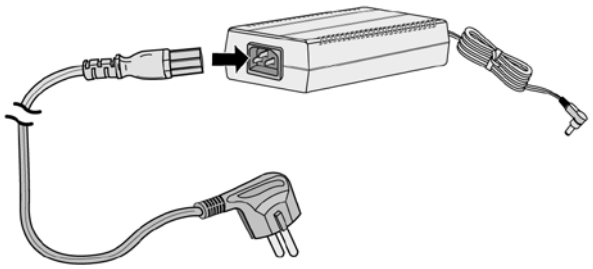


Figure 3.5-3 Power Adaptor

Connect the AC power cord to the Adaptor and plug-in to the AC power source. Plug the DC output connector into the corresponding connector on the lower rear panel of the RSGM. Upon connection of the AC/DC Adaptor, the RSGM will power-up. When power is applied, the RSGM will provide power to the “IPKTU LAN” port, if the “LAN POWER” switch is ‘ON’, and the RSGM will attempt to register with the remote host iPECS.

3.5.6 RSGM Power-Up

To properly register, the “WAN” port must be connected to an operational broadband connection and the RSGM must be properly programmed with the public IP address of the iPECS, refer to section 6. In addition, for successful registration, the iPECS must be programmed with the Ethernet MAC address of the RSGM, refer to section 5.

During the initial power-up, since the RSGM programming has not been accomplished, the RSGM will enter the “WAN DISCONNECTED” mode. The “WAN DISCONNECTED” mode will occur should any of the following conditions exist:

1) RSGM not assigned with proper host iPECS IP address,
2) RSGM Network configuration improper,
3) “WAN” connection improper or physically disconnected,
4) Host iPECS not assigned with RSGM MAC address,
5) ISP connection not operational, or
6) Host iPECS not operational.

In the “WAN DISCONNECTED” mode, communication between the RSGM and the host is not possible and thus the RSGM and the iPECS Phone or SLT will not have access to services and resources of the iPECS. The ‘S2’ LED on the front panel of the RSGM will light steadily and, if an iPECS Phone is connected to the RSGM, the LCD will display the “WAN DISCONNECTED” message. The iPECS Phone will be capable of placing/receiving a call from the locally connected CO Line. In addition, the telephone connected to the “SLT” port is directly connected to “CO” port by the internal PFT (Power Fail Transfer) relay, refer to section 4.

4. Power Fail Transfer

Should power to the RSGM fail, the external SLT port is directly connected to the CO port through the internal Power Fail Transfer relay. In this case, only the telephone connected to “SLT” port can place/receive a call through locally connected CO facility. If an iPECS Phone is connected to the RSGM, the loss of power to the RSGM also removes power to the iPECS Phone and thus it is non-operational. Normal operation of the RSGM and iPECS Phone return upon return of power to the RSGM.

5. iPECS Admin Programming for RSGM

In this section, several host system Admin Programs specific to the RSGM are introduced. For detailed information about the iPECS Admin Programming, please refer to "**iPECS Administration and Programming Manual**".

The RSGM provides a number of local services in addition to transparent access to the host iPECS. These include BGM/MOH, Alarm/Doorbell monitor and External Control contacts. PGM code group 430-435 allow for configuration of the RSGM identification and attributes for each RSGM supported by the host iPECS system.

5.1 RSGM Address & Configuration -PGM Code 430

The RSGM's MAC Address and other device specific configurations must be input to the iPECS prior to registration. In addition, the IP address and other device specific configuration can be displayed after registration.

5.2 RSGM Multi-Cast RTP/RTCP Ports -PGM Code 431

The iPECS does not provide BGM/MOH to RSGM. The RSGM employs local BGM and MOH facilities, to reduce traffic load on the WAN and VoIP channel processors. The RSGM uses IP Multicast for local BGM and MOH transport. There are two music sources available with the RSGM, an internal tone music source and an external source may be connected. Separate UDP port numbers are required for RTP and RTCP packets for each source. The default port numbers are programmable so they can be changed if needed.

5.3 RSGM External Control Contact -PGM Code 432

The RSGM incorporates a relay contact, which can be employed to control an external device. The contact is assigned to activate under one of several conditions. As a Loud Bell Contact (LBC), the contact will be activated when the RSGM station receives an external call. Alternatively, the contact may be used as a Door Lock Release contact, which is activated when the Door Unlock code is dialed by the RSGM station.

5.4 RSGM Alarm Attribute -PGM Code 433

The RSGM incorporates circuitry to monitor an external contact. This contact is generally employed as an Alarm indicator or Doorbell. The Alarm attributes define the operation of the monitoring circuitry. For the Alarm, the signal to the RSGM stations can be repeated or a single burst. The former is often desired. For the Doorbell, a single tone is sent each time the contact activates.

5.5 RSGM Music Assignment -PGM Code 434

The RSGM provides Background Music (BGM) to the local iPECS Phone. It also provides MOH to the local CO Line when placed on hold. BGM is provided from the assigned Music source, which may be an internal or external source. MOH may use the assigned Music source or an internal "Hold Tone".

5.6 RSGM Service Attributes -PGM Code 435

The RSGM exchanges voice (RTP) packets with iPECS and other users employing VoIP channels of the iPECS for RTP packet relay, implementing security (IPSec) and for QoS. The VoIP channels are assigned to a CO/IP line group in the iPECS database and must be assigned for use by the RSGM. Packets can be tagged with a DiffServ Code Point to provide per-hop priority. Also, the user can access the RSGM CO Line or a CO Line from the system's 1st CO Line group by dialing the CO Line access code ('9') Refer to the "**iPECS Administration and Programming Manual**" for details of RSGM Service Attributes.

6. Network Configuration

iPECS local devices need not be configured because the iPECS controls them directly. However, for remote devices such as the RSGM, configuration of the device by installer is required for proper data communication over the Internet. This is accomplished using a Web browser via the LAN connection or by a terminal emulator (e.g. Hyper Terminal) via the RS-232C serial connection. Web configuration is easier to use, but serial configuration may be useful for the first-time configuration.

Network configuration consists of RSGM WAN, LAN, and System configurations. These are explained in the following three sections of General, Web Configuration, and Serial Configuration. The last two sub-sections of this section describe typical network configuration examples and the detailed explanation of network parameters.

6.1 General

The RSGM has three network interfaces. One is the WAN interface that is connected to the Internet side, and the others are LAN interfaces used to connect a local PC and iPECS Phone.

6.1.1 WAN Port Related Settings

In order to send/receive data packets through the Internet, the RSGM's WAN side IP address, subnet mask, and gateway (router) address must be configured properly. The address information can be set manually (static) or automatically using DHCP (Dynamic Host Configuration Protocol). The RSGM supports connections to an xDSL/Cable modem as well as Ethernet switch (Hub).

6.1.2 LAN Port Related Settings

The RSGM LAN ports can be used to connect a local PC and iPECS Phone. No configuration of the iPECS Phone is required as it is configured automatically in 'Plug-and-Play' mode as with other iPECS local devices.

For PC LAN port, the RSGM provides a DHCP server, thus the PC's network setting must be changed to Dynamic Address Assignment mode. This setting can be changed by using the "Control Panel" of MS-Windows. For example, after opening "Local Area Connection Properties" Figure 6.1-1, select "Internet Protocol (TCP/IP)" and click "Properties" button.

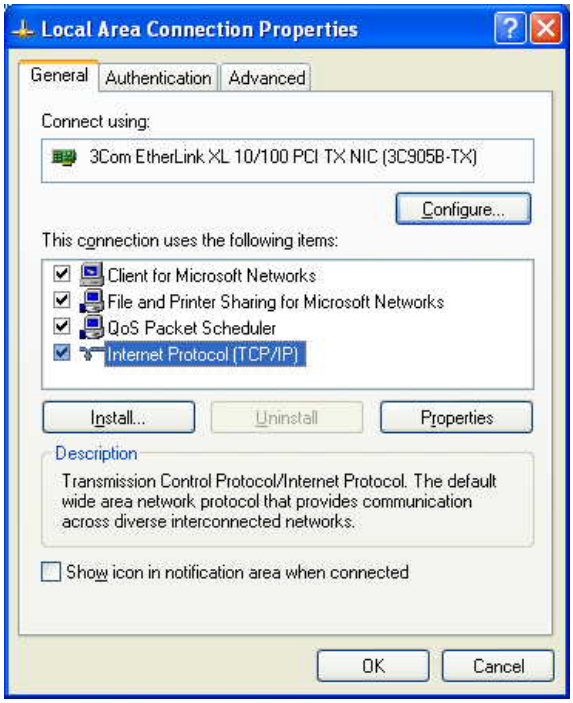


Figure 6.1-1 Local Area Connection Properties

This will display the “Internet Protocol (TCP/IP) Properties” window. If the PC has already been set to use DHCP as shown in Figure 6.1-2 below, the settings need not be changed.

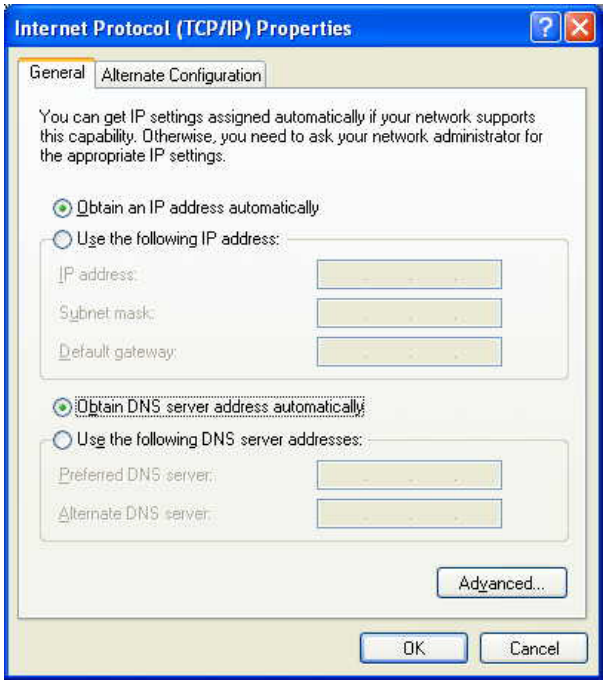

Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Figure 6.1-2 DHCP Setting

However, if the PC is set to use a ‘fixed IP address’ as shown in 6.2-3 below, the settings must be changed to “Obtain an IP address automatically” as shown in Figure 6.1-2 above.

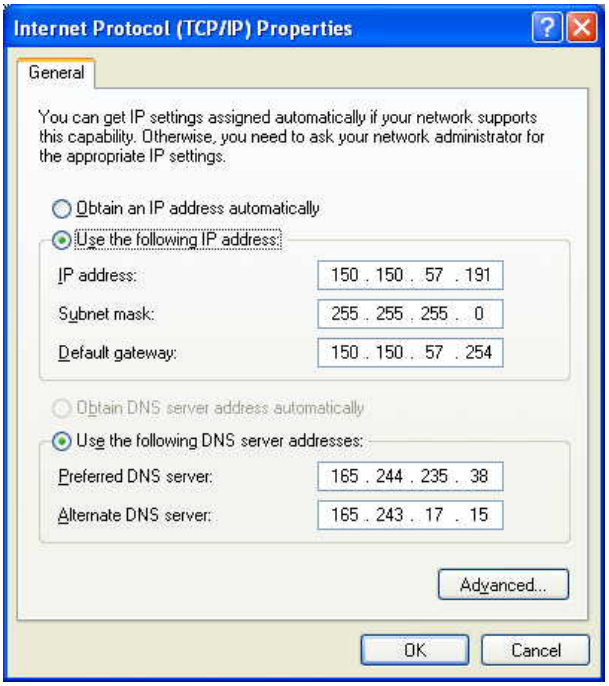

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 150 . 150 . 57 . 191
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 150 . 150 . 57 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 165 . 244 . 235 . 38
Alternate DNS server: 165 . 243 . 17 . 15
Advanced...
OK
Cancel

Figure 6.1-3 Fixed Address Setting

6.2 RSGM Configuration via Web Browser

Web Configuration is an easy way to configure the RSGM network parameters using a Web browser. A Web browser is an easy method for access the RSGM Web Admin pages and may be employed over LAN or WAN connections. The LAN Connection method is intended for first time configuration while the WAN connection method is intended for remote access after the RSGM has successfully registered with the host iPECS.

6.2.1 General Information

After changing PC's network settings to Dynamic Address Assignment mode, the RSGM Web Admin can be accessed with a Web browser by "pointing" to the RSGM LAN side default address, "10.10.50.50". This will return the RSGM Admin Home page see Figure 6.2-1. On the left side of the window is the Admin Menu screen and in the center is the Admin main screen. The RSGM Admin Home page displays general information on the RSGM settings.

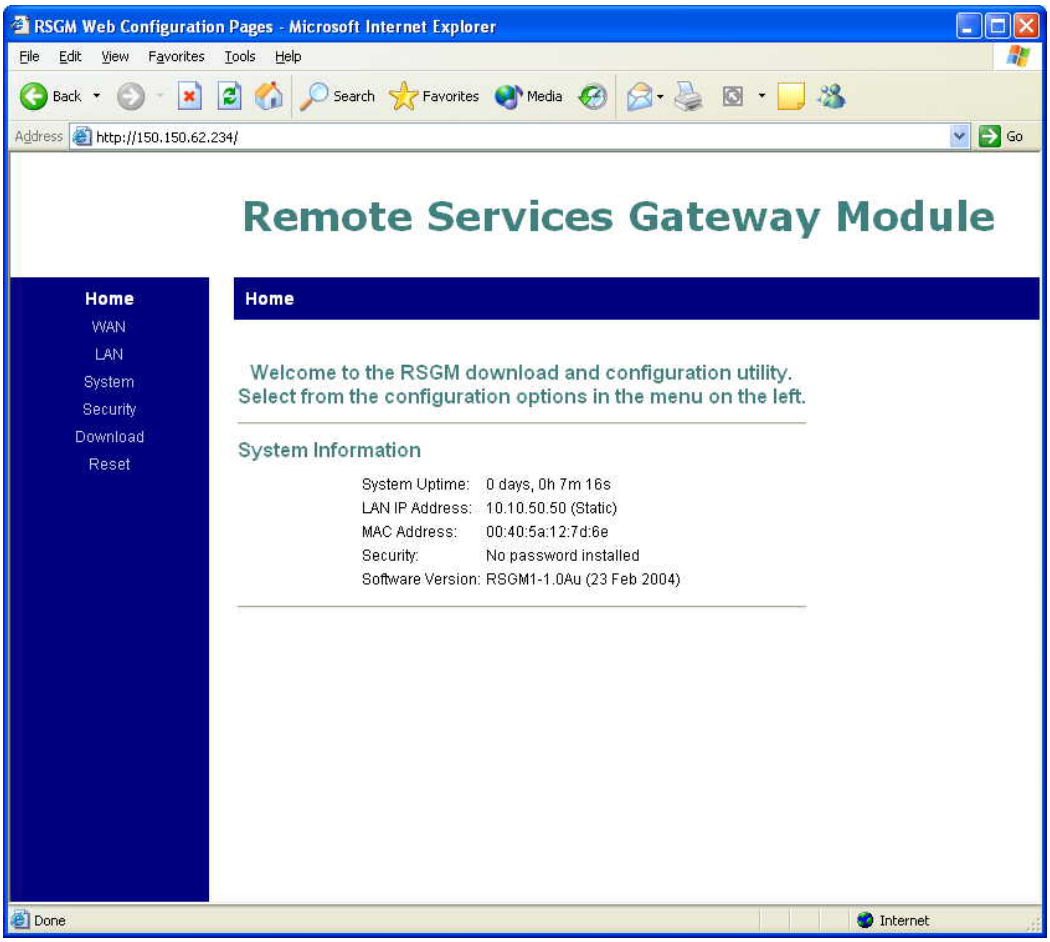


Figure 6.2-1 Web Admin Home

6.2.2 WAN Configuration

When “WAN” on the left menu or “WAN Status” on the top menu is selected, the WAN Status page appears. This page shows the WAN port network parameters and status.

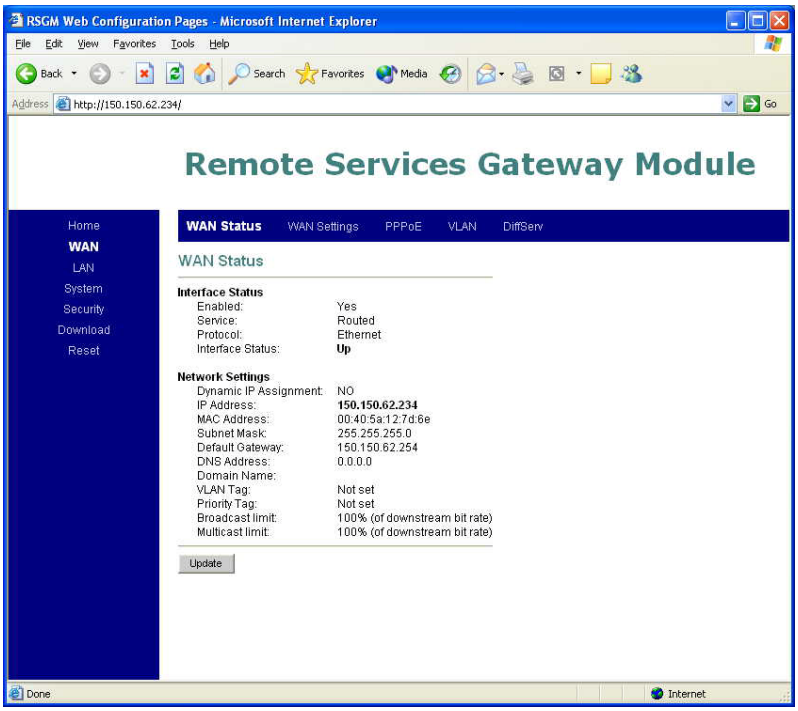


Figure 6.2-2 WAN Status

Selecting “WAN Settings” on the top menu bar of the main screen returns the WAN Settings page. If changes are made, select the “Save WAN Settings” button to store the changes.

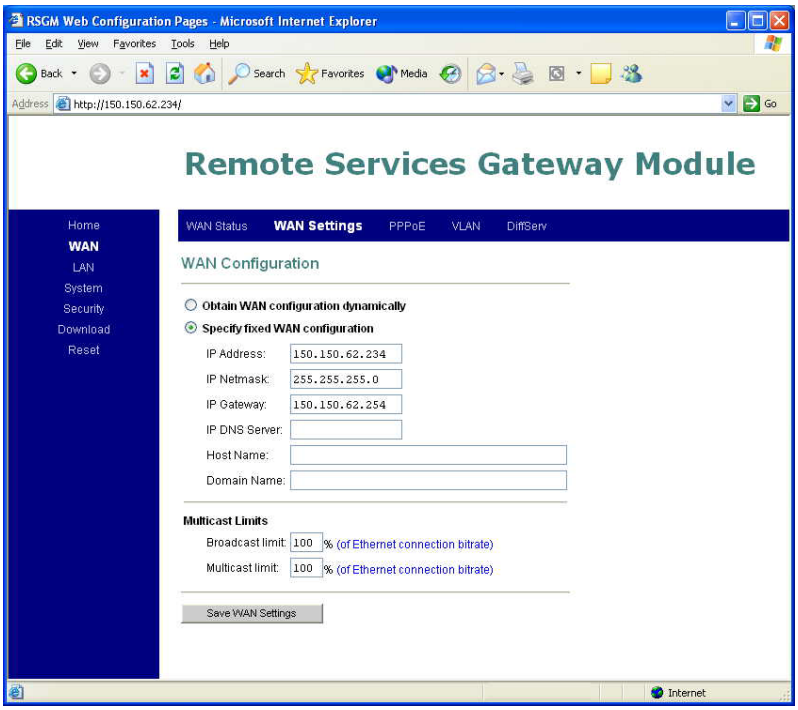


Figure 6.2-3 WAN Setting

If dynamic address assignment is to be used, just click “Obtain WAN configuration dynamically” radio button. Other information need not be entered in this case. This mode can be utilized when DHCP server exists in the same network segment of the RSGM. In addition, if connected to xDSL/Cable modem and a fixed address is not assigned, this mode should be selected.

If fixed IP address is to be used, click “Specify fixed WAN configuration” radio button, and then enter the IP Address, IP Net mask and IP Gateway information. Other information is optional and need not be entered.

Selecting PPPoE from the top menu bar returns the PPPoE page Figure 6.2-4, which is for used configuring PPPoE parameters when “User Name” and “Password” are required to log in to the ISP’s service. If changes are made, select the “Save PPPoE Settings” button to store the changes.

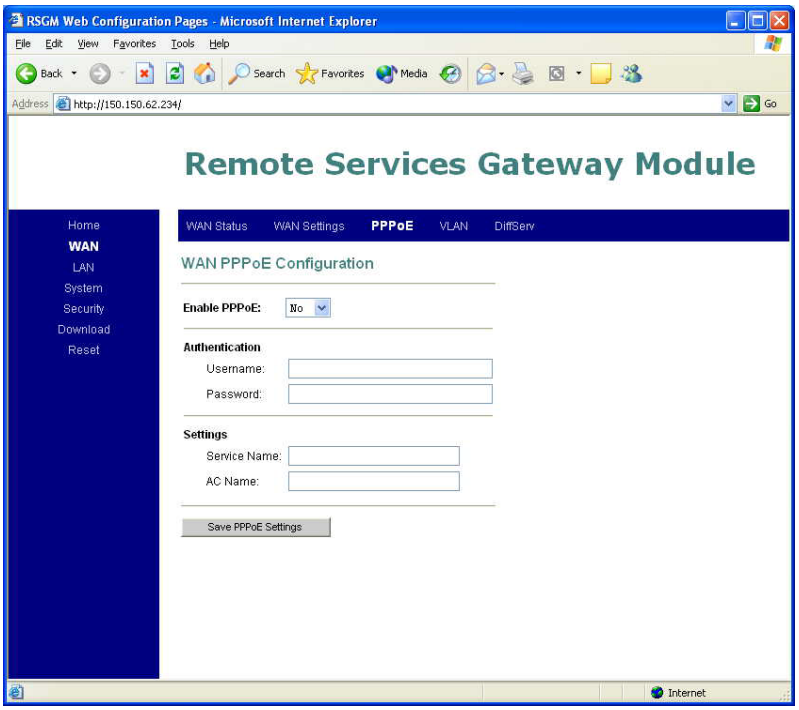


Figure 6.2-4 WAN PPPoE Configuration

If the ISP does not require entry of a “User Name and “password to log in, the “Enable PPPoE” combo box should be set to “No”.

If the ISP requires entry of User Name and Password, set “Enable PPPoE” combo box to “Yes”, and enter the appropriate “User name” and “Password”. “Service Name” and “AC Name” (Account Name) are optional entries, enter these values only if provided by the ISP and they required for proper modem operation.

Note, when PPPoE is used, the IP address is generally assigned by ISP thus, “Obtain WAN configurations dynamically” should be selected in previous “WAN Settings” page.

Selecting VLAN from the top menu bar returns the VLAN settings page Figure 6.2-5. If changes are made, select the “Save VLAN Settings” button to store the changes.

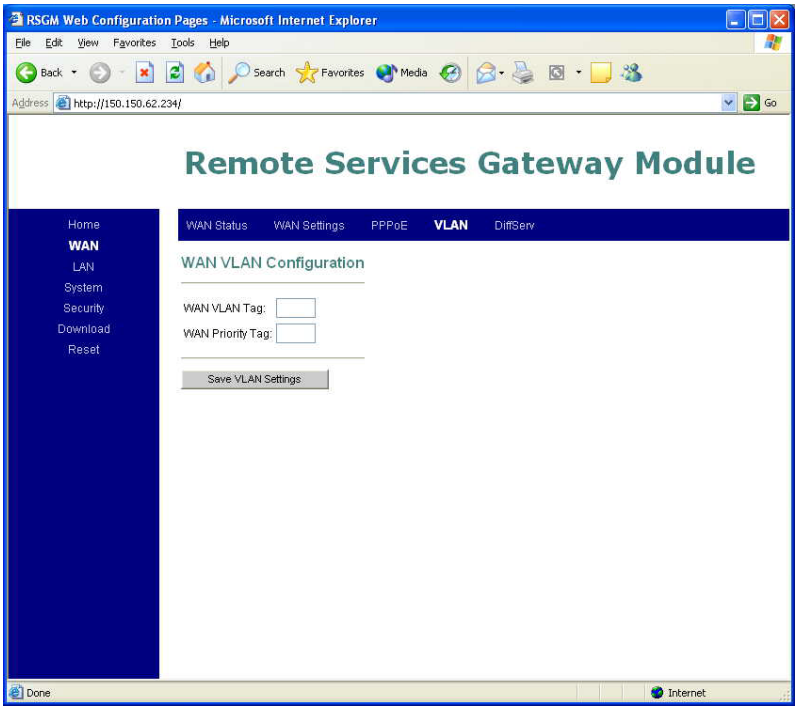


Figure 6.2-5 VLAN/Priority Configuration

VLAN packets are not compatible with normal Ethernet packets, and these settings should be configured only if the RSGM local network is using VLAN/Priority. If VLAN tags are enter by mistake, they can be corrected only by using Serial Configuration.

Selecting DiffServ from the top menu bar returns the DiffServ settings page Figure 6.2-6. If changes are made, select the “Save DiffServ Settings” button to store the changes.

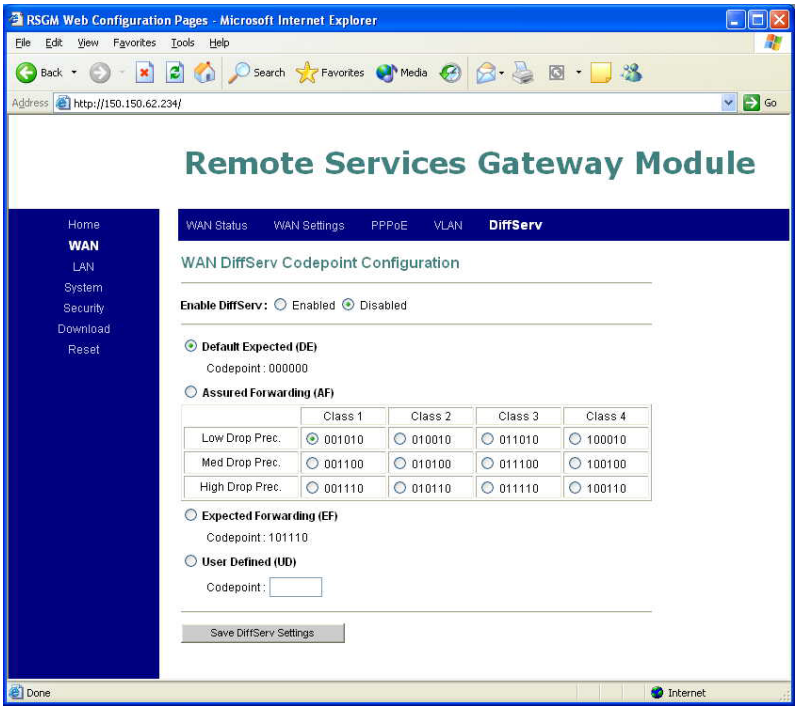


Figure 6.2-6 DiffServ Configuration

ISPs that support DiffServ (Differentiated Services) may require end-devices to preset the DiffServ Code Point (DSCP) to give priority to specific types of packets. In this case, the DiffServ value can be assigned on this page. When setting the value, click “Enabled” radio button on “Enable DiffServ” item, then select or enter the assigned value.

6.2.3 LAN Configuration

When “LAN” on the left menu or “LAN Settings” on the top menu is clicked, LAN Settings page will display. This page shows LAN side network parameters. If changes are made, select the “Save LAN Settings” button to store the changes.

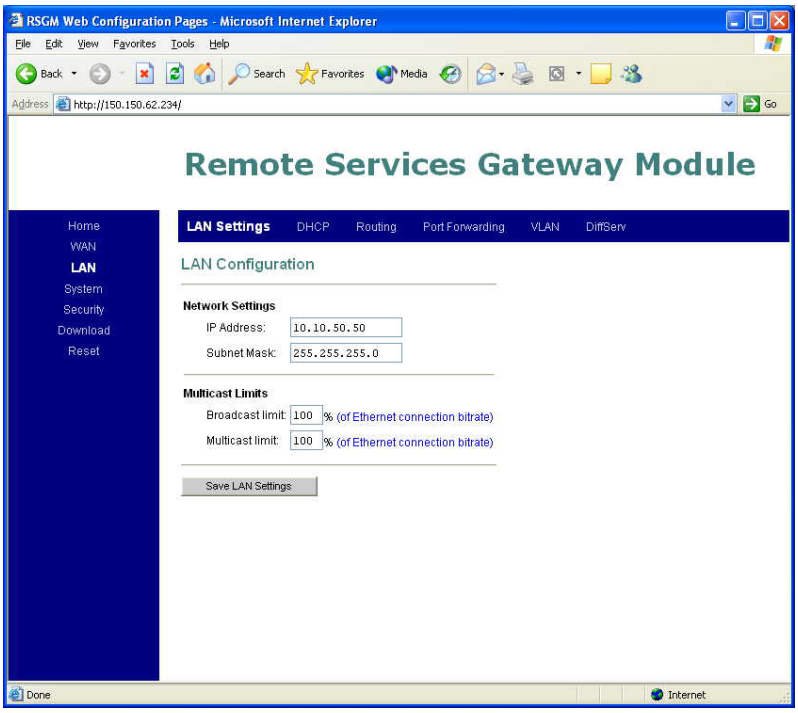


Figure 6.2-7 LAN Settings

The IP address and subnet mask of LAN side interface can be changed on this page by entering new values and clicking “Save LAN Settings” button.

Selecting DHCP from the top menu bar returns the DHCP Server Configuration page Figure 6.2-7. If changes are made, select the “Save DHCP Settings” button to store the changes. To view the DHCP assignment table, select the “View DHCP Table”.

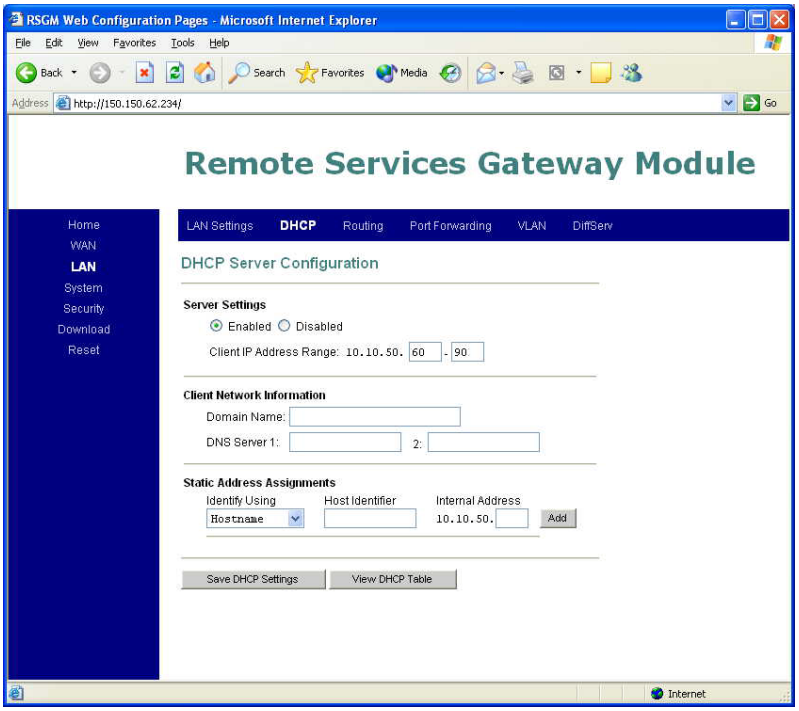


Figure 6.2-8 DHCP Server Configuration

By using this page, DHCP can be enabled or disabled by clicking either “Enabled” or “Disabled” radio button on “Server Settings” item, and client IP address range can also be changed. In addition, the DNS server for the local client can be configured, and it is possible to assign specific IP addresses statically to designated clients.

Detailed description of other configuration parameters available under the LAN page are discussed in the last section of this chapter.

6.2.4 System Configuration

When “System” on the left menu or “System Settings” on the top menu is clicked, System Settings page will display. This page shows the IP address of the host iPECS system. If changes are made, select the “Save LAN Settings” button to store the changes. In order for the RSGM to register with the host iPECS, the IP address of the iPECS must be set. The iPECS administrator should have the host system IP address.

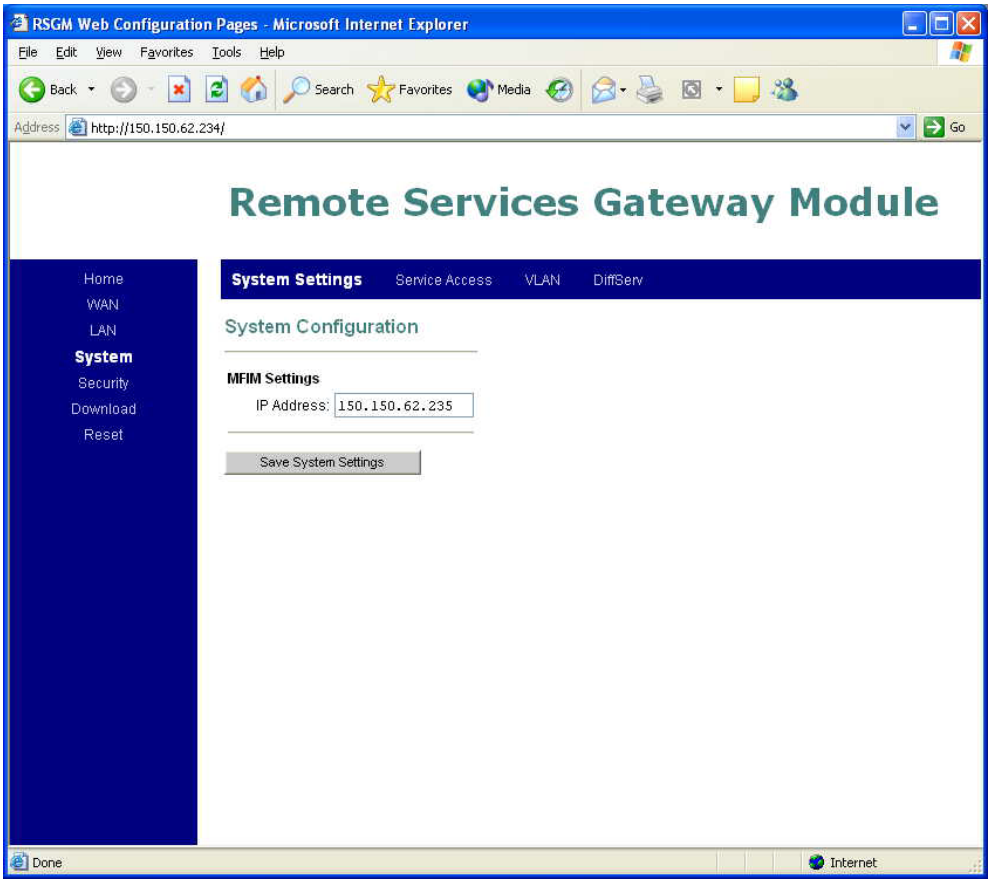


Figure 6.2-9 System Configuration

Detailed description of the other configuration parameters available under the System page are discussed in the last section of this chapter.

6.3 RSGM Configuration via Serial Terminal

Serial Terminal configuration is a simple way to configure the RSGM network parameters using Terminal Emulator software (e.g. Hyper Terminal) via TIA/EIA-323 serial connection. It provides access to the RSGM Terminal Admin pages that are similar in function to the Web Admin pages. Serial Terminal Admin is suitable for first-time installation.

The serial communication settings for terminal emulators are as follows;

Bits per Second (bps) : 38400

Data Bit : 8

Parity : None

Stop Bit : 1

Flow Control : None

As the Serial Terminal configuration is conceptually the same as Web configuration, this section will concentrate on how use Serial Configuration to change network parameters. Please refer to the previous section, RSGM Configuration via Web browser.

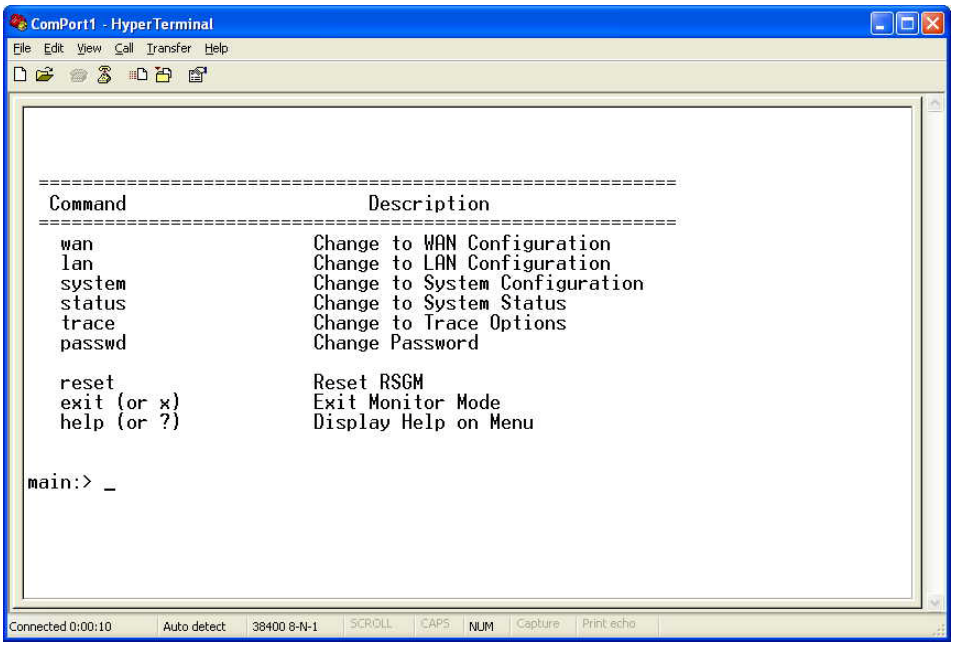


Figure 6.3-1 Initial Serial Terminal Screen

After connecting the PC and RSGM with TIA/EIA-323 serial cable, launch the terminal emulator (e.g. Hyper Terminal), and then press “Enter” key, you will see the menu above.

The Serial Terminal configuration employs a directory structure. To enter the WAN Configuration sub-directory, type “wan” and then press “Enter” key, the WAN Configuration menu as in Figure 6.3-2 will be displayed. Here there are sub-directories and/or operation commands. To return to higher level directory, type “..” and then press “Enter” key.

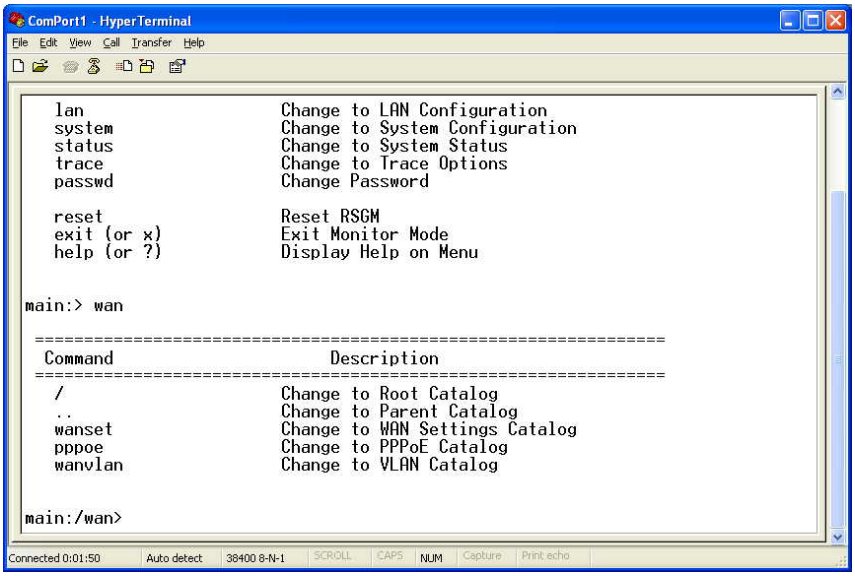

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
lan Change to LAN Configuration
system Change to System Configuration
status Change to System Status
trace Change to Trace Options
passwd Change Password
reset Reset RSGM
exit (or x) Exit Monitor Mode
help (or ?) Display Help on Menu
main:> wan
Command Description
/ Change to Root Catalog
.. Change to Parent Catalog
wanset Change to WAN Settings Catalog
pppoe Change to PPPoE Catalog
wanvlan Change to VLAN Catalog
main:/wan>
Connected 0:01:50 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-2 Entering WAN Configuration

The “wan” directory has three sub-directories. “wanset” sub-directory, which contains address settings related operation commands, “pppoe” sub-directory, which contains PPPoE related settings that may be needed when using xDSL/Cable modem and “wanvaln” sub-directory, which contains WAN side VLAN related operation commands.

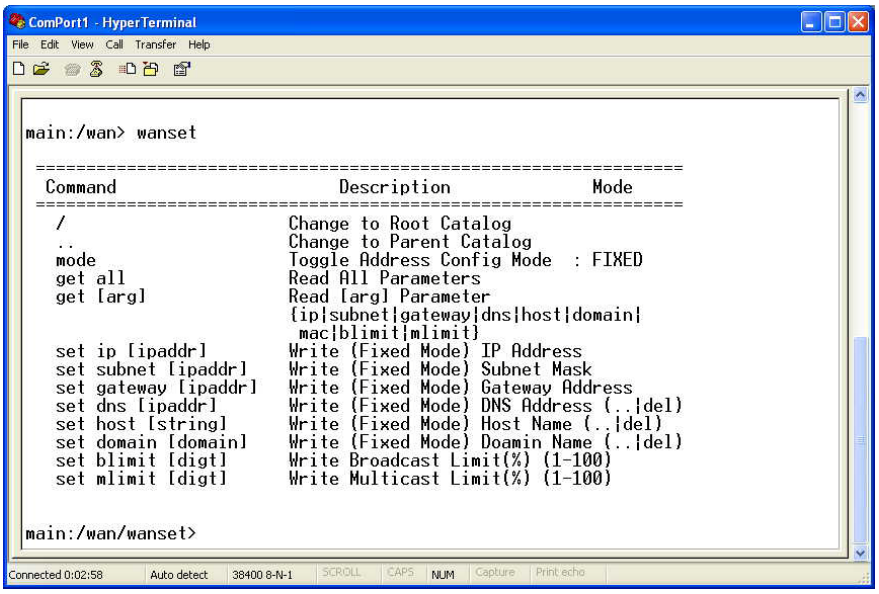

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
main:/wan> wanset
Command Description Mode
/ Change to Root Catalog
.. Change to Parent Catalog
mode Toggle Address Config Mode : FIXED
get all Read All Parameters
get [arg] Read [arg] Parameter
{ip|subnet|gateway|dns|host|domain|
mac|blimit|mlimit}
set ip [ipaddr] Write (Fixed Mode) IP Address
set subnet [ipaddr] Write (Fixed Mode) Subnet Mask
set gateway [ipaddr] Write (Fixed Mode) Gateway Address
set dns [ipaddr] Write (Fixed Mode) DNS Address (..|del)
set host [string] Write (Fixed Mode) Host Name (..|del)
set domain [domain] Write (Fixed Mode) Doamin Name (..|del)
set blimit [digt] Write Broadcast Limit(%) (1-100)
set mlimit [digt] Write Multicast Limit(%) (1-100)
main:/wan/wanset>
Connected 0:02:58 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-3 WAN Settings Menu

By typing “wanset” in “wan” sub-directory, you will see the menu shown in Figure 6.3-3. Note, the “mode” command on third line works as a toggle; each time “mode” is typed, the right side Mode string will be toggled between “FIXED” and “DYNAMIC”.

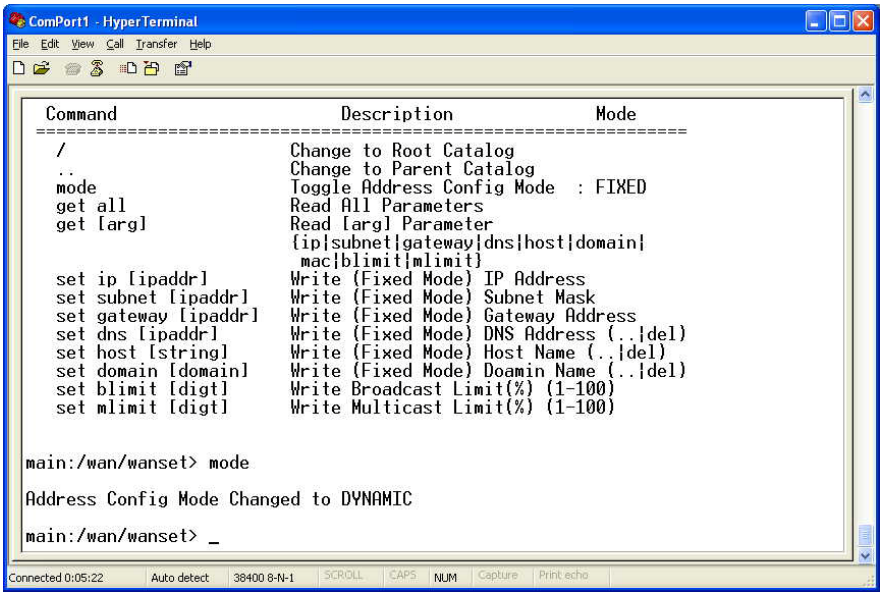

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
Command Description Mode
/ Change to Root Catalog
.. Change to Parent Catalog
mode Toggle Address Config Mode : FIXED
get all Read All Parameters
get [arg] Read [arg] Parameter
{ip|subnet|gateway|dns|host|domain|
mac|blimit|mlimit}
set ip [ipaddr] Write (Fixed Mode) IP Address
set subnet [ipaddr] Write (Fixed Mode) Subnet Mask
set gateway [ipaddr] Write (Fixed Mode) Gateway Address
set dns [ipaddr] Write (Fixed Mode) DNS Address (..|del)
set host [string] Write (Fixed Mode) Host Name (..|del)
set domain [domain] Write (Fixed Mode) Doamin Name (..|del)
set blimit [digt] Write Broadcast Limit(%) (1-100)
set mlimit [digt] Write Multicast Limit(%) (1-100)
main:/wan/wanset> mode
Address Config Mode Changed to DYNAMIC
main:/wan/wanset> _
Connected 0:05:22 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-4 Setting WAN DHCP Mode

If the RSGM “WAN” port will operate in DHCP mode, setting the Mode to “DYNAMIC” will be the only required setting in the “wanset” sub-directory. However, to use fixed addressing, set the Mode to “FIXED” and the addressing data must be configured manually as described in the following paragraphs.

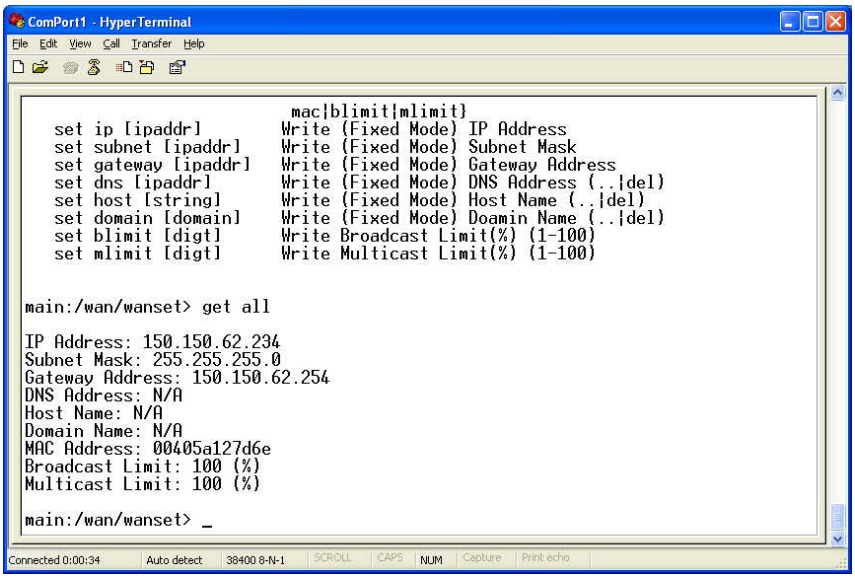

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
mac|blimit|mlimit}
set ip [ipaddr] Write (Fixed Mode) IP Address
set subnet [ipaddr] Write (Fixed Mode) Subnet Mask
set gateway [ipaddr] Write (Fixed Mode) Gateway Address
set dns [ipaddr] Write (Fixed Mode) DNS Address (..|del)
set host [string] Write (Fixed Mode) Host Name (..|del)
set domain [domain] Write (Fixed Mode) Doamin Name (..|del)
set blimit [digt] Write Broadcast Limit(%) (1-100)
set mlimit [digt] Write Multicast Limit(%) (1-100)
main:/wan/wanset> get all
IP Address: 150.150.62.234
Subnet Mask: 255.255.255.0
Gateway Address: 150.150.62.254
DNS Address: N/A
Host Name: N/A
Domain Name: N/A
MAC Address: 00405a127d6e
Broadcast Limit: 100 (%)
Multicast Limit: 100 (%)
main:/wan/wanset> _
Connected 0:00:34 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-5 Displaying WAN Address Information

At first, by typing “get all” and pressing “Enter” key, you may check current address settings. IP Address, Subnet Mask, and Gateway Address are mandatory parameters required for Fixed (static) IP addressing.

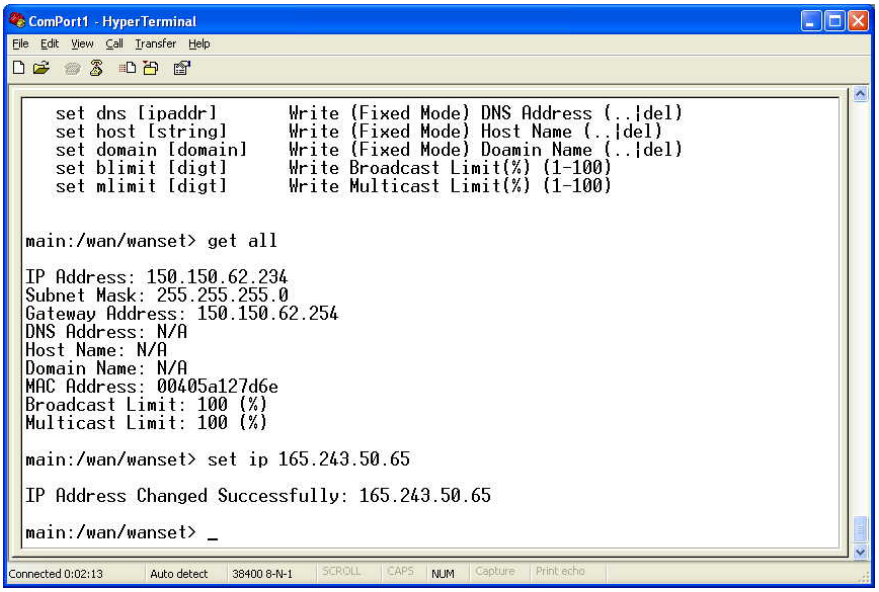

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
set dns [ipaddr] Write (Fixed Mode) DNS Address (..|del)
set host [string] Write (Fixed Mode) Host Name (..|del)
set domain [domain] Write (Fixed Mode) Doamin Name (..|del)
set blimit [digt] Write Broadcast Limit(%) (1-100)
set mlimit [digt] Write Multicast Limit(%) (1-100)
main:/wan/wanset> get all
IP Address: 150.150.62.234
Subnet Mask: 255.255.255.0
Gateway Address: 150.150.62.254
DNS Address: N/A
Host Name: N/A
Domain Name: N/A
MAC Address: 00405a127d6e
Broadcast Limit: 100 (%)
Multicast Limit: 100 (%)
main:/wan/wanset> set ip 165.243.50.65
IP Address Changed Successfully: 165.243.50.65
main:/wan/wanset> _
Connected 0:02:13 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-6 Setting WAN IP Address

As an example, by typing “set ip 165.243.50.65”, you can change the RSGM “WAN” port IP address. Other address information can be changed in a similar manner. For example, in order to change the gateway address to “165.243.50.254”, you type “set gateway 165.243.50.254” and press “Enter” key.

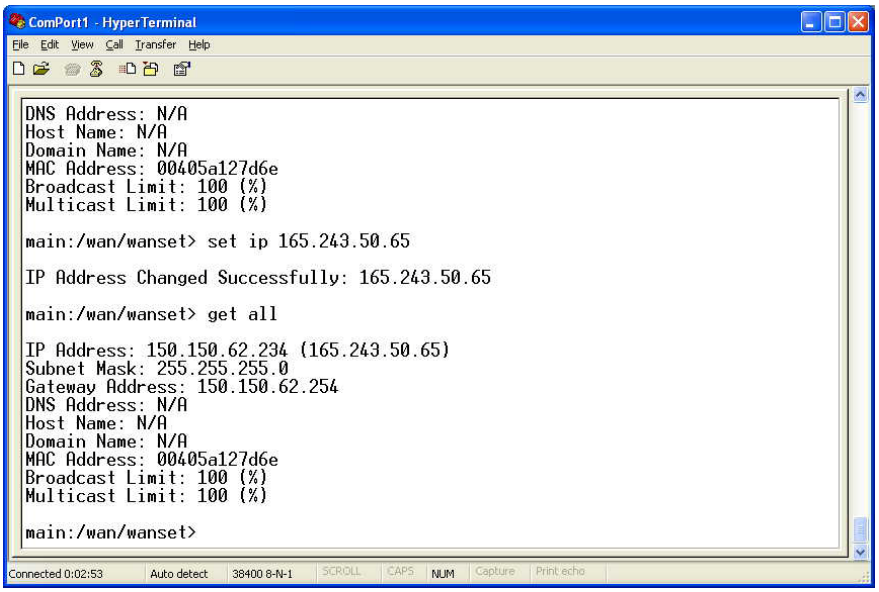


Figure 6.3-7 Displaying WAN Address Information

If you type “get all” again, you will see “165.243.50.65” inside the braces. This means that the “WAN” port address will be changed to this address after restarting RSGM.

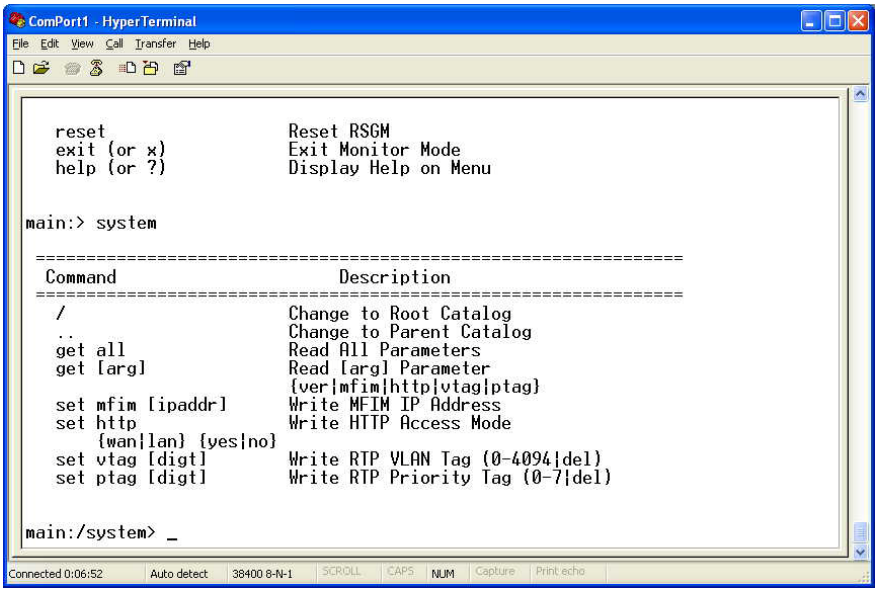

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
reset Reset RSGM
exit (or x) Exit Monitor Mode
help (or ?) Display Help on Menu
main:> system
Command Description
/ Change to Root Catalog
.. Change to Parent Catalog
get all Read All Parameters
get [arg] Read [arg] Parameter
{ver|mfim|http|vtag|ptag}
set mfim [ipaddr] Write MFIM IP Address
set http Write HTTP Access Mode
{wan|lan} {yes|no}
set vtag [digt] Write RTP VLAN Tag (0-4094|del)
set ptag [digt] Write RTP Priority Tag (0-7|del)
main:/system> _
Connected 0:06:52 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-8 Entering System Configuration

To return to the root directory, type, “/” and then press “Enter” key. Then, by typing “system” in root directory, you can enter the System Configuration sub-directory.

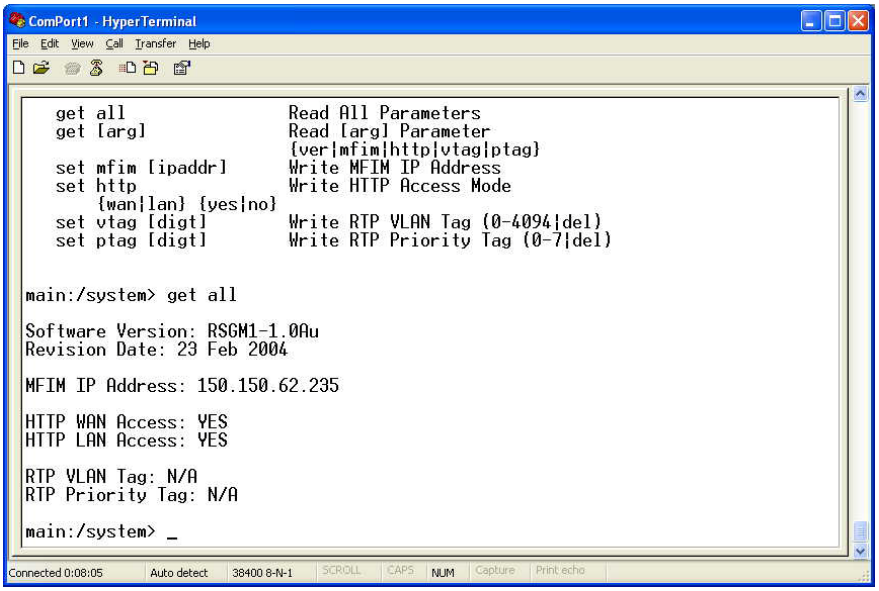

ComPort1 - HyperTerminal
File Edit View Call Transfer Help
get all Read All Parameters
get [arg] Read [arg] Parameter
{ver|mfim|http|vtag|ptag}
set mfim [ipaddr] Write MFIM IP Address
set http Write HTTP Access Mode
{wan|lan} {yes|no}
set vtag [digt] Write RTP VLAN Tag (0-4094|del)
set ptag [digt] Write RTP Priority Tag (0-7|del)
main:/system> get all
Software Version: RSGM1-1.0Au
Revision Date: 23 Feb 2004
MFIM IP Address: 150.150.62.235
HTTP WAN Access: YES
HTTP LAN Access: YES
RTP VLAN Tag: N/A
RTP Priority Tag: N/A
main:/system> _
Connected 0:08:05 Auto detect 38400 8-N-1 SCROLL CAPS NUM Capture Print echo

Figure 6.3-9 Displaying System Information

Again, you may check current System Configuration settings by typing “get all” in “system” directory. Here, you may also check RSGM S/W version and revision date information.

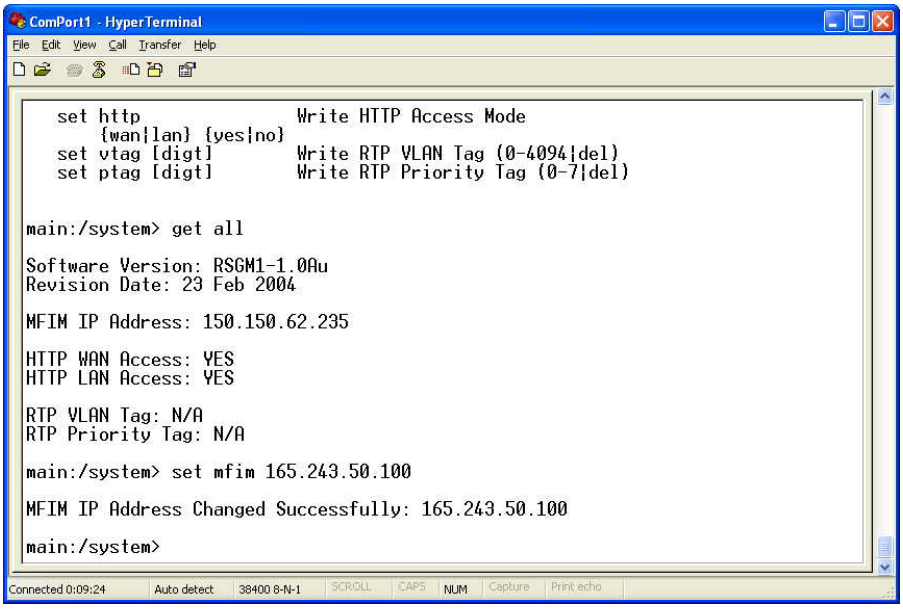


Figure 6.3-10 Setting System IP Address

By typing “set mfim xxx.xxx.xx.xxx”, you can change the IP address of host iPECS (e.g. MFIM/E) and after restarting the RSGM, the new IP address entered will be used.

Detailed description of configuration parameters will be shown in the last section of this chapter.

6.4 Typical Network Configuration Examples

Even though there are many parameters that can be configured, only a few parameters need to be configured for the first-time configuration. There can be some variations in configuring RSGM, but the main procedure is simple.

1) Change the PC's network settings to Dynamic Address Assignment mode. If a PC is will not be connected to the RSGM Data (PC) port, skip this step.
2) By Web browser or Serial Terminal, configure WAN side addresses in WAN Configuration.
3) Configure IP address of the host iPECS (e.g. MFIM/E) in System Configuration.

Remember the RSGM "LAN" port default IP address is 10.10.50.50, so you may access the RSGM Web Admin pages from local PC with this IP address.

6.4.1 Normal LAN Environment with Fixed IP Address

1) WAN Settings
   Set Address Configuration mode to "FIXED"
   Enter fixed address information (IP address, Subnet Mask, Gateway address)
2) PPPoE Settings
   Set PPPoE mode to Inactive (No)
3) System Settings
   Set IP address of the host iPECS (e.g. MFIM)

6.4.2 Normal LAN Environment with DHCP Server

1) WAN Setting
   Set Address Configuration mode to "DYNAMIC"
2) PPPoE Settings
   Set PPPoE mode to Inactive (No)
3) System Settings
   Set IP address of the host iPECS (e.g. MFIM)

6.4.3 xDSL/Cable Modem with User Name and Password Required

1) WAN Settings
   Set Address Configuration mode to "DYNAMIC"
2) PPPoE Settings
   Set PPPoE mode to Active (Yes)
   Enter User name and Password (Mandatory). Enter Service name and AC name if needed/available (Optional).
3) System Settings
   Set IP address of the host iPECS (e.g. MFIM)

6.4.4 xDSL/Cable Modem without User Name and Password

1) WAN Settings
   Set Address Configuration mode to "DYNAMIC"
2) PPPoE Settings
   Set PPPoE mode to Inactive (No)
3) System Settings
   Set IP address of the host iPECS (e.g. MFIM)

6.5 Network Configuration Descriptions

6.5.1 WAN Configuration

The WAN connection is used for the communication with the iPECS as well as other network devices beyond the local network.

WAN Settings

These settings allow configuration of the Ethernet WAN interface. First, select whether you wish the WAN interface to be configured for dynamic (via a DHCP server on the network if Ethernet, or via PPP if using PPPoE), or static IP addressing. If you wish to assign the WAN interface settings statically, enter the IP address, subnet mask, default gateway IP address and DNS server IP address. It is also recommended that the network domain name be provided as well, to ensure correct DNS operation.

PPPoE Settings

First, select whether PPPoE is enabled or disabled. If enabled, enter the username and password required for the login (authentication) process. If the PPPoE server (service provider) requires any special Service Name or AC (Account) Name to be set, you can specify the tags here.

VLAN Settings

VLAN settings allow configuration of VLAN tag and/or Priority tag for all outgoing packets.

6.5.2 LAN Configuration

The LAN connections are used for communicating with an IP KTU and/or a PC connected to the LAN ports of RSGM.

LAN Settings

Assign an IP address to the LAN Ethernet port. This IP address is also the default router address for the devices on the private (local) LAN. The default LAN interface IP address is set to 10.10.50.50. Enter the subnet mask for the private LAN. If you wish to set the broadcast and multicast limits, enter these values as percentages of the LAN interface Ethernet bit rate. Leaving these values blank will imply values of 100%.

DHCP Settings

DHCP settings allow configuration of the private LAN DHCP server. Specify whether the device's internal DHCP server feature is enabled or disabled. Also, indicate the IP address range to use for DHCP assignments to the LAN. Specify the domain name (optional) that is provided to LAN clients via DHCP. Two optional static DNS server IP addresses can be entered that will be provided to LAN clients via DHCP. These are in addition to the DNS servers automatically provided by WAN connections.

Via the Web configuration, up to eight static DHCP addresses can be configured. User can add or remove static assignment entries, and view the current active DHCP client-binding table. The device's internal DHCP client binding table cleared, but be aware that doing this will destroy the DHCP server's knowledge of the LAN clients it has provisioned, and may result in client problems when a client tries to renew its lease.

Port Forwarding Settings

Port Forwarding allows configuration of the device's port forwarding feature. Port forwarding provides WAN access to the internal LAN, by specifying that traffic over certain ports are to be directed at particular LAN hosts. Up to eight port forwarding entries ("Pinholes") can be configured. To add a port forwarding entry configure the Port Range to be forwarded, the Protocol to be forward (TCP, UDP or both), and destination LAN IP Address to be used. User may also remove specific entries. Note that certain port numbers may be reserved by the CPE for its own internal use. These ports may not be used for port forwarding to the LAN. Ports which may be reserved by the CPE include those used by iPECS signaling, RTP packets, HTTP, etc. All reserved (unavailable) ports will be displayed on this page.

Router Settings

Router settings allow configuration of the device's core router functionality. If you wish for the router to update its routing tables dynamically, specify whether RIPv2 dynamic routing information is to be received or transmitted (or both). In addition, up to eight static route entries can be assigned via Web configuration. To add a static route, enter the static route Destination IP address, subnet Mask, gateway IP Address, metric, and interface. Metric is a number from 1 to 15 inclusive. Users may also remove specific entries or view current internal routing table.

VLAN Settings

VLAN settings allow configuration of VLAN tag and/or Priority tag for all outgoing packets.

6.5.3 System Configuration

System configuration contains the items that do not specifically belong to WAN or LAN categories.

System Settings

System settings allow configuration of iPECS IP address (e.g. MFIM/E) so that RSGM can register with iPECS.

Service Access Settings

Service access allows access to certain system level network services on the device's interfaces to be enabled/disabled. Specifically, HTTP access from devices on the LAN or WAN or both can be allowed or denied.

VLAN Settings

VLAN settings allows configuration of the VLAN settings for RTP packets. Specific VLAN settings for RTP packets are separately applied, which will override the general values set in WAN or LAN settings. If no special RTP VLAN settings are applied, then RTP packets will also use the general VLAN settings entered in WAN or LAN settings.

7. Troubleshooting Guide

Table 7-1 Troubleshooting Guide

Problem	Reason	Solution
LED of LAN jack is not operated	LAN cable connection is physically failed	Check cable connection.
iPECS Phone power is off	LAN POWER switch is off	Switch “LAN POWER” on.
WAN DISCONNECTED mode	1) Physically, WAN connection failed 2) The RSGM is not registered in the iPECS System 3) The network configuration of the RSGM has some problem. 4) An ISP has some problem	1) Check LAN cable, and re-connect, 2) Register the RSGM in the host iPECS, 3) Check the RSGM network configuration, 4) Ask the ISP. Contact the agent of Ericsson-LG.
On the PC behind RSGM, network application (e.g Web Browser) does not work properly	PC is not assigned IP address properly from RSGM DHCP server after restarting RSGM. Some PC (OS) may not detect the DHCP server restart.	Restart network adaptor by using “ipconfig /renew_all” (Win95/98) command or “ipconfig /renew” (Win2000/XP) command on Command Prompt, or restart the network adaptor in other available way. For Win95/98, the PC may have to be restarted.
RSGM seems to stop packet communication after setting VLAN/ Priority	End user’s local network environment may not be configured or does not support VLAN/ Priority.	By using Serial Configuration, disable VALN/ Priority settings.
Packet communication does not seem to work properly with xDSL/ Cable modem.	1). WAN side address settings and PPPoE settings are not correct. 2). Other network devices (e.g. PC) are connected together with RSGM to the same xDSL/ Cable modem even though only single IP address was assigned from ISP.	1). Check WAN side address settings together with PPPoE settings. (Refer to Chapter 6 for details) 2). Disconnect all other network devices from the modem, and restart RSGM.
Packet routing between WAN and LAN ports does not work properly.	WAN and LAN side network address must be different because RSGM is a layer 3 (IP level) routing device.	If LAN side IP address is 10.10.50.50, WAN side IP address should be other than 10.10.50.X (e.g. 123.123.10.10). If RSGM must use 10.10.50.X for WAN side, LAN side address should be changed.